

**Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of)	
)	
Amendment of the Commission's Rules with)	GN Docket No. 12-354
Regard to Commercial Operations in the)	
3550-3650 MHz band)	

COMMENTS OF THE INFORMATION TECHNOLOGY INDUSTRY COUNCIL

The Information Technology Industry Council (ITI) hereby files these comments in response to the Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding.¹

ITI represents 50 of the nation's leading information technology companies, including computer hardware and software, Internet services, and wireline and wireless networking companies.² ITI is the voice of the high-tech community, advocating policies that advance U.S. leadership in technology and innovation, open access to new and emerging markets, support e-commerce expansions, protect and enhance consumer choice, and foster increased global competition.

I. INTRODUCTION AND SUMMARY

ITI supports the Commission's efforts to make spectrum in the 3550-3650 MHz band available for broadband communications use. ITI's member companies operate across the mobile ecosystem – including network equipment providers, fiber providers, mobile handset

¹ *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650-MHz Band*, GN Docket No. 12-268, FCC 12-148 (Rel. Dec. 12, 2012).

² For more information on ITI, *including* a list of its members, please visit <http://www.itic.org/about/member-companies.dot>.

providers, wireless chipset manufacturers, and mobile software and application providers – and welcome the opportunity to provide comments on the issues raised in this NPRM. ITI strongly believes that making additional spectrum available for mobile broadband is critical to meeting the public’s demand and expectations from their mobile devices, as well as ensuring the growth and innovation of the wireless ecosystem continues.

As ITI recently stated in comments filed in the Commission’s incentive auction proceeding,³ the need for more spectrum for mobile broadband use is clear: estimates from Alcatel-Lucent, Cisco, and Ericsson all point to the need to move expeditiously to make spectrum available for mobile broadband.⁴ The 100 – 150 MHz⁵ of spectrum identified in the NPRM will allow for flexible uses that could lead to the development and expansion of technologies that help meet demand from the American public’s increasing reliance on broadband connected mobile devices.

ITI member companies have diverse interests and continue to evaluate several different models and alternatives for shared operations in this band. In these initial comments, ITI makes

³See Comments of ITI, *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268 (filed January 25, 2013), at 3-5.

⁴ An Alcatel-Lucent study estimates that by 2016, spectrum-hungry tablets and smart phones will make up 59% of the mix of mobile devices compared to only 19% feature phones. See Bell Labs Traffic Index Study of 2012. According to estimates from Cisco, mobile data traffic will increase 18-fold between 2011 and 2016, growing at a compound annual growth rate of 78 percent between 2011 and 2016. See *Cisco Visual Networking Index: Forecast and Methodology, 2011-2016* (rel. May 30, 2012). A recent study from Ericsson found mobile broadband subscriptions have grown around 55 percent year-on-year and have reached over 1.4 billion worldwide, while mobile broadband (defined as CDMA2000 EV-DO, HSPA, LTE, mobile WiMAX and TD-SCDMA) subscription penetration in North America in 2012 Q3 reached 101 percent. See *Ericsson Mobility Report: on the Pulse of the Networked Society*, (rel. November 2012), available at <http://www.ericsson.com/res/docs/2012/ericsson-mobility-report-november-2012.pdf>.

⁵ The NPRM seeks comment on whether the 3650-3700 MHz band should be included in the proposed regulatory regime, a proposal which ITI supports. See NPRM at ¶ 77-82.

several recommendations. First, the use of any form of “Priority Access” tier should be expanded beyond “hospitals, utilities, state and local governments,”⁶ and include commercial users. Second, the Commission should consider new spectrum sharing technology developments. Third, ITI believes that to maximize the value of this spectrum for the American public, the 50 MHz of spectrum in the 3650-3700 MHz band should be included in the Commission’s plans as well. Finally, ITI asks that the Commission consider proposals that might reduce the size of the exclusion zones around federal government sites and also permit time-shared use within bounded exclusion zones when there are periods of inactivity by incumbent users, in order to increase the usage efficiency of the spectrum.

II. IF A “PRIORITY ACCESS” TIER IS INCLUDED IN THE FINAL PLAN, THE COMMISSION SHOULD ALLOW COMMERCIAL USERS IN THAT TIER.

While ITI appreciates the important role that “mission critical” users play in society, we believe that access to the priority tier— “Tier 2” of the Commission’s proposed regulatory regime⁷—need not be limited to just these users. Indeed, the lack of service or usage guarantees in the Commission’s lead proposal, and the subordinate use assignment relative to incumbent users, may make this band unsuitable for certain “mission critical” use and undesired by those users. Commercial users have a similar need for the priority access envisioned for this tier, and ITI believes that both commercial and mission critical users can benefit from priority access. Further, the level of participation from the limited definition of priority users is unquantified and uncertain, and a broadening of that definition would improve utilization.

⁶ NPRM at ¶ 9.

⁷ NPRM at ¶¶ 70-74.

III. THE COMMISSION SHOULD CONSIDER THE APPLICABILITY OF NEW SPECTRUM SHARING TECHNOLOGY DEVELOPMENTS FOR THE 3550-3650 BAND

There are new technologies that can permit commercial users to use spectrum at times when the government or other incumbent users are not operating on that spectrum. This could take the form of time sharing, geographic sharing, and/or frequency sub-band sharing. One such technology framework is known as Licensed Shared Access (LSA). The EU Radio Spectrum Policy Group defines LSA as follows:

“An individual licensed regime of a limited number of licensees in a frequency band, already allocated to one or more incumbent users, for which the additional users are allowed to use the spectrum (or part of the spectrum) in accordance with sharing rules included in the rights of use of spectrum granted to the licensees, thereby allowing all the licensees to provide a certain level of QoS.”

The implementation of LSA may use advances in cognitive technology to permit sharing in the time, frequency, and geographic domains. ITI member companies Nokia Siemens Networks, Ericsson, Qualcomm, and Intel are active in the development of the LSA framework. Under LSA, an LSA controller accesses information in an LSA repository, which contains relevant information (in terms of spatial, geographic, and temporal domains) of spectrum available for use by LSA licensees. The LSA repository can allow higher power in a way to serve the user without impacting incumbent services. A user of the spectrum in question is only allowed to transmit when the LSA controller indicates that spectrum is available and no harmful interference will be caused to the incumbent.

The Commission should remain agnostic with respect to which technologies can make the most efficient use of this spectrum. While small cell technology is particularly promising as a way to avoid interference with incumbent users and minimize exclusion zones, not all the shared spectrum will be adjacent to exclusion zones. Thus, macro cell technology, a higher powered technology, or a combination of these may be part of the solution for maximizing utilization of this band. A high-quality service environment is what has fed, in part, the incredible growth in supply—and demand—for mobile broadband service. As the Commission notes, “dedicated spectrum is in short supply,” and even though there would remain incumbent government users in the 3.5 GHz band, there could still be at least certainty with regard to access to that spectrum that would potentially be of great value to the American public. As the Commission evaluates the various approaches for shared use of the 3550 MHz band, ITI encourages the Commission to keep this consideration at the forefront.

IV. THE COMMISSION SHOULD INCLUDE THE 3650-3700 MHz BAND IN ITS PROPOSED REGULATORY REGIME.

The Commission asks whether the current “licensed light” 3650-3700 MHz band should be included in the proposed 3550-3650 regulatory regime. ITI believes the Commission should do so in order to maximize the potential for the 3.5 GHz band. As ITI has noted in the past, mobile broadband technologies generally benefit from the availability of large blocks of spectrum.⁸

⁸ See Comments of ITI, *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268 (filed January 25, 2013), at 7.

The current users of the 3650-3700 MHz spectrum could also be eligible for priority access to the larger, 3550-3700 band. As the Commission notes, economies of scale could drive down the cost of equipment in this band, benefiting current providers and end-users.⁹

V. THE COMMISSION SHOULD TAKE A FRESH LOOK AT THE PROPOSED SIZE OF THE EXCLUSION ZONES AROUND FEDERAL INCUMBENTS IN THE 3.5 GHz BAND.

Finally, ITI notes that the NTIA modeling referenced in the NPRM could exclude as much as 190 million people from access to 3.5 GHz spectrum.¹⁰ ITI urges the FCC to take a fresh look at whether such large exclusion zones are necessary based on different implementation assumptions(e.g. the NTIA's Fast Track Report was based on WiMAX macro cell deployments) used to define these large exclusion zones. The fresh look at the exclusion zones could benefit from the recent work by CSMAC, which evaluated shared use of the 1755 band and interference considerations with LTE deployments. In addition, it may be possible that enhanced databases could more efficiently facilitate sharing the 3550MHz spectrum rather than merely relying on large permanent exclusion zones to protect incumbents. For example, if real-time information about incumbent use of the spectrum were available to the Spectrum Access System, perhaps exclusion zones could be greatly reduced, or would not be necessary at all, during periods when the incumbent user was not in need of it. To maximize the potential value of 3.5 GHz spectrum, ITI asks the Commission to reevaluate the assumptions that led to the large exclusion zones outlined in the Fast Track report.

⁹ See NPRM at ¶ 78.

¹⁰ See NPRM at ¶ 117.

VI. CONCLUSION

Again, ITI welcomes the opportunity to comment on the Commission's proposal to make spectrum in the 3.5 GHz band available for commercial use. ITI believes that innovative use of the 3.5 GHz band will help meet our nation's pressing spectrum needs, and continue to fuel the tremendous innovation and investment we have seen in the mobile broadband ecosystem over the past decade plus. ITI and its member companies stand ready to work with the Commission to share the 3.5 GHz band with commercial users for the benefit of the American public.

Respectfully Submitted,

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